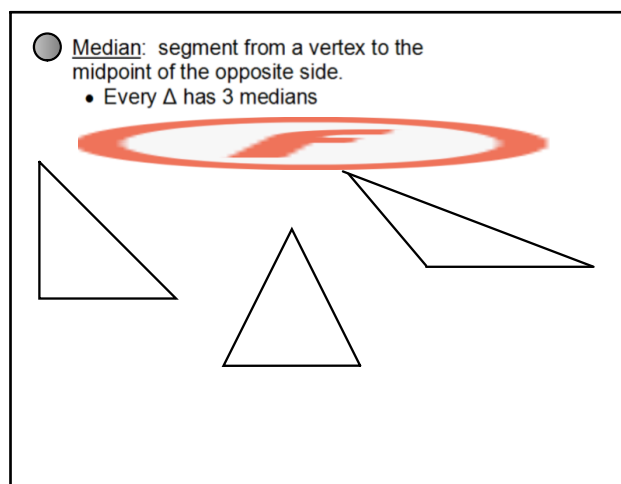
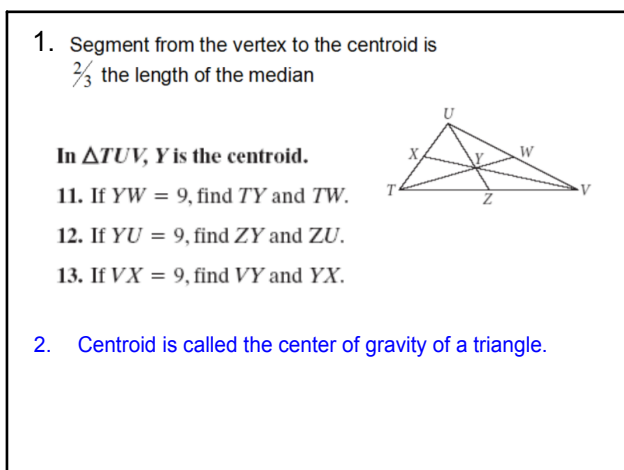




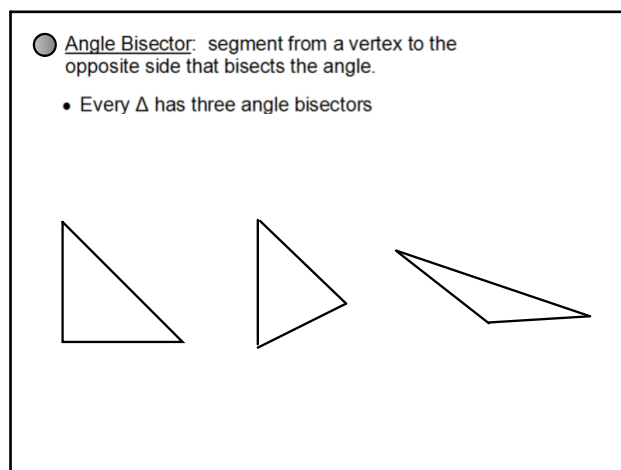
Oct 30-8:04 AM



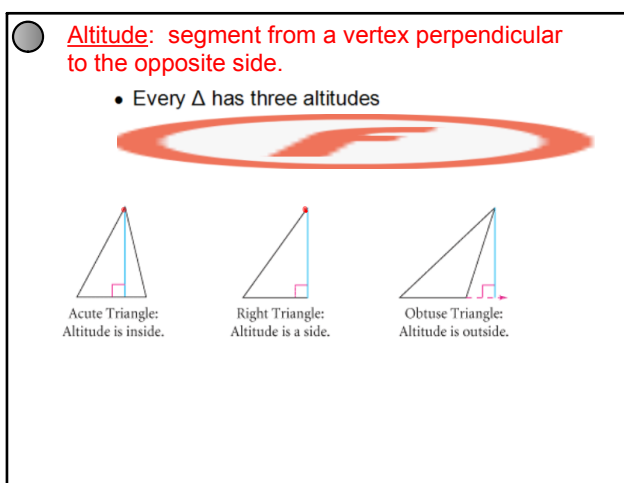
Oct 31-7:55 AM



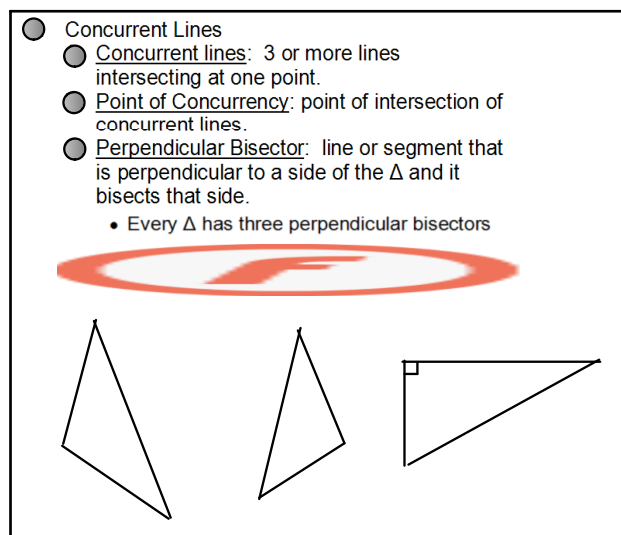
Nov 9-2:15 PM



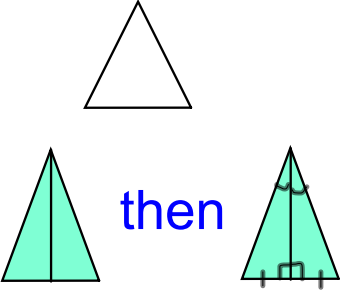
Oct 30-7:49 AM

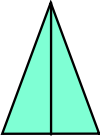
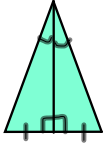


Oct 31-7:53 AM



Oct 30-7:46 AM



If  then 

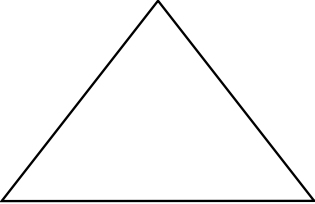
● In an isosceles triangle, the angle bisector of the vertex angle is the median, the altitude, and the perpendicular bisector.

Oct 10-7:56 AM



Oct 29-1:26 PM

**Equilateral Triangle:** equilateral and equiangular

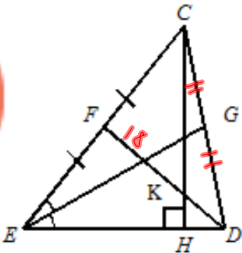


Oct 30-8:39 PM

Using  $\triangle CDE$ , identify the following:


- a) MEDIAN of the triangle  $\rightarrow \overline{DF}$
- b) ALTITUDE of the triangle  $\rightarrow \overline{CH}$
- c) ANGLE BISECTOR of the triangle  $\rightarrow \overline{EG}$


In  $\triangle CDE$ , if  $KF=18$ , then  $DK=$  36

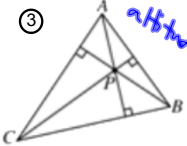


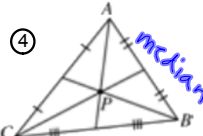
Nov 27-8:03 AM

Name the special segments drawn in each triangle

①   $\angle$  bisector

② 

③  altitude

④  median

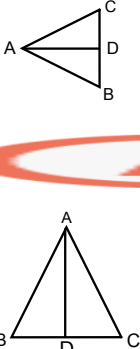
Nov 27-8:04 AM

$\triangle ABC$ ,  $\overline{AD}$  is an altitude  
 $m\angle ADC = 8x - 6$   
 $DC = x + 8$   
 $DB = 3x - 15$   
Find  $x$  and  $DC$

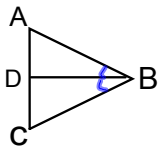
$8x - 6 = 90$

In  $\triangle ABC$ ,  $\overline{AD}$  is the median  
 $m\angle ADC = 5x + 22$   
 $BD = 10x - 3$   
 $DC = 5x + 17$   
find  $x$  and  $BD$

$10x - 3 = 5x + 17$



Oct 23-3:01 PM



In  $\triangle ABC$ ,  $\overline{BD}$  is the angle bisector,  
 $m\angle ABC = 6x + 20$   
 $m\angle ABD = 8x - 15$   
 Find  $x$  and  $m\angle DBC$

$\frac{1}{2} \rightarrow 3x + 10$

$2(8x - 15) = 6x + 20$   
 $16x - 30 = 6x + 20$   
 $10x = 50 \quad x = 5$

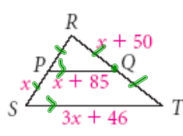
Oct 23-3:07 PM

Midsegment

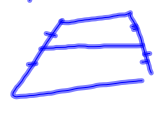
Midsegment of a  $\triangle$ : segment connecting the midpoints of 2 sides of a  $\triangle$ .

1. Midsegment is parallel to the third side
2. Midsegment =  $\frac{1}{2}$  (third side)

Ex:  $Q$  and  $P$  are midpoints of the sides of  $\triangle RST$ .



$2(x + 85) = 3x + 46$

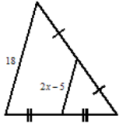


Oct 30-7:45 AM

Midsegment:

1. \_\_\_\_\_ to the third side
2. midsegment = \_\_\_\_\_

18. Find the value of  $x$ .

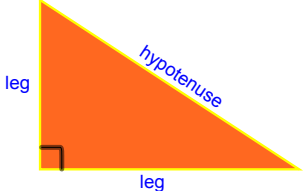


Nov 27-8:02 AM

IV: Right Triangles and Congruence

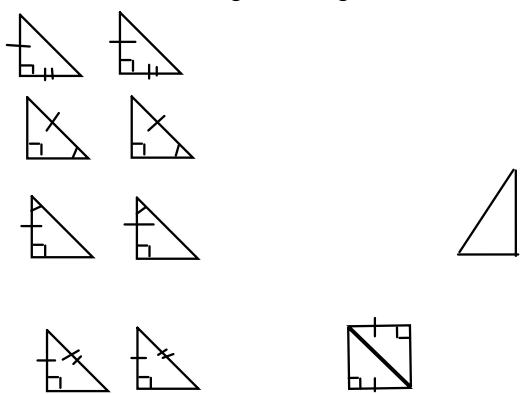
A. Right Triangle:  $\triangle$  with 1 right  $\angle$

1. hypotenuse: side opposite the right  $\angle$  (longest side)
2. legs: sides of the right  $\angle$



Oct 10-7:57 AM

Right Triangles



Oct 23-3:30 PM

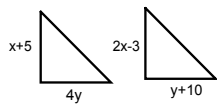
B. Proving triangles

1. Proving any triangles:
  - Given statement
  - 3  $\cong$  statements
  - $\triangle \cong \triangle$  (SSS, SAS, ASA, AAS)
2. Proving right triangles:
  - Given statement
  - 2  $\cong$  statements
  - Right  $\triangle$  statement
  - $\triangle \cong \triangle$  (Hypotenuse- leg HL)

Oct 10-7:57 AM

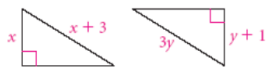
## Warm-up

1. solve by LL

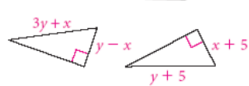


What values of x and y are the triangles congruent by HL?

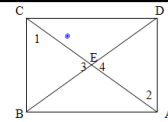
2



3



## Warm-up

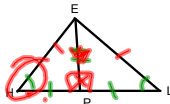
Given:  $\overline{BC} \cong \overline{DA}$  $\angle 1 \cong \angle 2$ Prove:  $\triangle BEA \cong \triangle DEC$ 

Statements

Reasons

Oct 19-7:52 AM

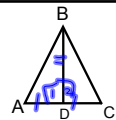
Oct 10-7:57 AM

Proof: Given:  $\overline{EP}$  is the median of  $\triangle HEL$  $\angle H \cong \angle L$ Prove:  $\angle HEP \cong \angle LEP$ 

Statements	Reasons
$\triangle HEL$ is the median of $\triangle HEL$	Given
$HE \cong LE$	isosceles $\triangle$ Theorem
$HP \cong PL$	Def median
$\triangle HEP \cong \triangle LEP$	SAS
$\angle HEP \cong \angle LEP$	C.P.C.T.C.

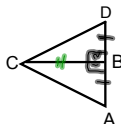


Oct 31-7:55 AM

Given:  $\overline{BD}$  is a perpendicular bisector of  $\triangle ABC$ Prove:  $\triangle ABD \cong \triangle CBD$ 

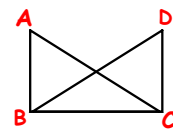
Statements	Reasons
$\overline{BD}$ is a $\perp$ bisector	Given
$\angle 1 \cong \angle 2$ are rt $\angle$ 's	Def of $\perp$
$AD \cong DC$	Def of $\perp$ bisector
$BD \cong BD$	Ref
$\triangle ABD \cong \triangle CBD$	SAS/LL

Oct 23-3:10 PM

Given:  $\overline{CB}$  is an altitude of  $\triangle ACD$   
B is the midpoint of  $\overline{AD}$ Prove:  $\triangle ABC \cong \triangle DBC$ 

Statements	Reasons
$\overline{CB}$ is an altitude	Given
B is midpoint of $\overline{AD}$	Given
$AB \cong DB$	Def midpoint
$\angle 1$ and $\angle 2$ are rt	Def of altitude
$\angle 1 \cong \angle 2$	all rt $\angle$ 's $\cong$
$CB \cong CB$	reflexive
$\triangle ABC \cong \triangle DBC$	SAS

Oct 23-3:19 PM

Given:  $\overline{AB} \perp \overline{BC}$ ,  $\overline{DC} \perp \overline{BC}$ ,  
 $\overline{AC} \cong \overline{DB}$ Prove:  $\overline{AB} \cong \overline{DC}$ 

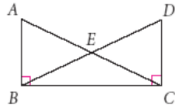
Statements

Reasons

Oct 10-7:57 AM

Given:  $\overline{AB} \perp \overline{BC}$ ,  $\overline{DC} \perp \overline{BC}$ ,  
 $\overline{AC} \cong \overline{DB}$

Prove:  $\overline{AB} \cong \overline{DC}$

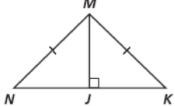


Statements	Reasons
① $\overline{AB} \perp \overline{BC}$ $\overline{DC} \perp \overline{BC}$ $\overline{AC} \cong \overline{DB}$ (hyp)	① given
② $\overline{BC} \cong \overline{BC}$ (leg)	② reflexive
③ $\angle ABC \cong \angle DCB$	③ def of $\perp$
④ $\triangle ABC \cong \triangle DCB$	④ def of rt $\triangle$
⑤ $\triangle ABC \cong \triangle DCB$	5. HL

Oct 10-7:57 AM

Given:  $\overline{MJ} \perp \overline{NK}$ ,  $\overline{MN} \cong \overline{MK}$

Prove:  $\triangle MJN \cong \triangle MJK$

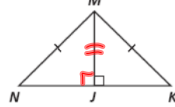


Statements	Reasons
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Oct 10-7:57 AM

Given:  $\overline{MJ} \perp \overline{NK}$ ,  $\overline{MN} \cong \overline{MK}$

Prove:  $\triangle MJN \cong \triangle MJK$



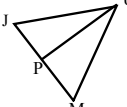
Statements	Reasons
① $\overline{MJ} \perp \overline{NK}$ $\overline{MN} \cong \overline{MK}$ (hyp)	① given
② $\overline{MJ} \cong \overline{MJ}$ (leg)	② reflexive
③ $\angle MJN \cong \angle MJK$ are	③ def of $\perp$
④ $\triangle MJN \cong \triangle MJK$ are	④ def of rt $\triangle$
⑤ $\triangle MJN \cong \triangle MJK$	⑤ HL

Oct 10-7:57 AM

**Warm-up**

Given:  $\overline{UP}$  is  $\perp$  bisector of  $\triangle JUM$

Prove:  $\overline{UP}$  is angle bisector of  $\triangle JUM$

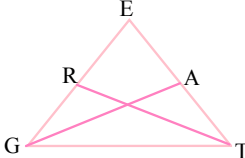


Statements	Reasons
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Nov 26-7:28 AM


Given:  $\overline{TR} \perp \overline{GE}$ ,  $\overline{GA} \perp \overline{TE}$

Prove:  $\overline{GA} \cong \overline{RT}$



Statements	Reasons
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Oct 23-8:04 AM



$m\angle A = 70$   
 $m\angle B = 50$

List the sides in order from smallest to largest.

$3$   
 $4$

List the angles in order from largest to smallest

Mar 26-11:08 PM

## BELLWORK

Determine which segment is the shortest in each diagram.

1

2

3

CD

XY

Nov 9-8:03 AM

Sum of any 2 sides of a triangle is greater than the length of the third side.

Can these measurements form a triangles?

15, 12 and 9

23, 16, and 7

2.8, 6.8, 4.5

The lengths of two sides of a triangle are given.  
Describe the lengths possible for the third side

18 m, 23 m

5 in., 16 in.

Nov 19-7:49 AM

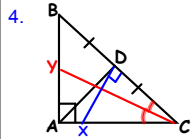
### Triangle Inequality Theorem

1. The sum of two sides of a triangle must be \_\_\_\_\_

Inequalities for sides and angles of a triangle

2. Largest angle is always \_\_\_\_\_

3. Shortest side is always \_\_\_\_\_



$\overline{AD}$  = \_\_\_\_\_

$\overline{BA}$  = \_\_\_\_\_

$\angle x$  = \_\_\_\_\_

$\angle y$  = \_\_\_\_\_

Nov 27-8:19 AM

Pg 282

11.  $m\angle NQO = m\angle NOQ = 57$ ,  $m\angle ONQ = 66$

12. 7, 58

13. no, angle not 90

14. 13, 17

15. 6, 26

16. 10, 2

17. 2, 1

25.  $\overline{SP}$

26.  $\overline{AC}$ ,  $\overline{BC}$ ,  $\overline{AB}$

28.  $6 < x < 16$

29.  $17 < x < 31$

30. yes,  $AB = \sqrt{306}$   $AC = 13$   $BC = 5$   $18 > 17.5$

33.  $m\angle ALK < m\angle ALN$

34.  $m\angle ALK < m\angle NLO$

35.  $m\angle OLK > m\angle NLO$

36.  $m\angle KLO = m\angle ALN$

Nov 3-9:52 AM